

# The Smart Condo

## Computing in Service of Assisted Living

[http://ssrq.cs.ualberta.ca/index.php/Smart\\_Condo](http://ssrq.cs.ualberta.ca/index.php/Smart_Condo)

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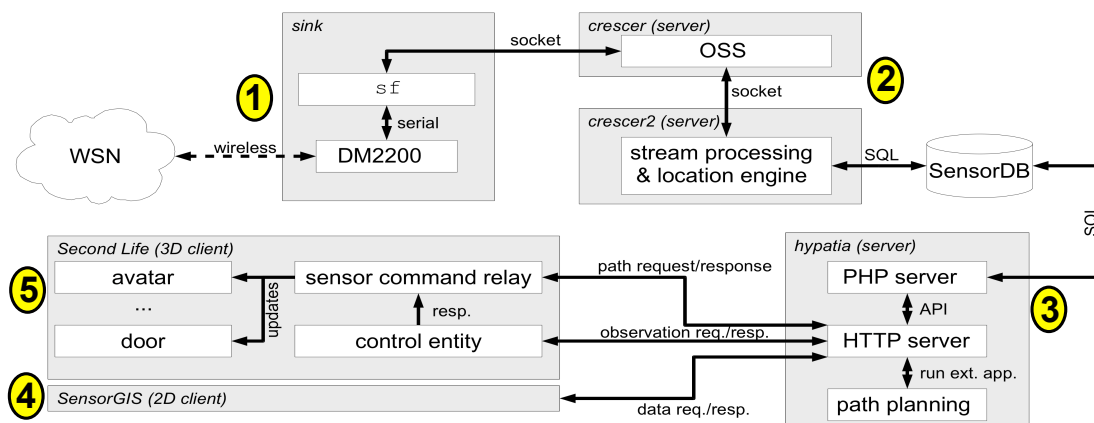
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### Research Objectives:

- Monitor patient behavior while respecting privacy
- Develop an extensible assistive infrastructure that can evolve to meet the patient's changing needs
- Develop computer-supported education curricula to train health professionals in using technology to provide high-quality health care

1. Network nodes are attached to sensors (switches, temperature, acceleration, pressure, ...)
2. Nodes forward sensor readings to sinks
3. The sinks connect to the Operations Support System, which archives readings in the SensorDB

- 2 A stream-mining engine examines windows of readings to infer higher-order information (location based on motion-sensor readings)



- 5 1. Using condo blueprints, a virtual condo with similar layout and furnishings is built in Second Life (SL)
2. At run-time, a special SL client accesses the server to request information about the state of the condo's artifacts and its occupant
3. A path-planning component generates obstacle-free paths based on the patient location, which is inferred by the stream mining component.

- 4 1. The Smart Condo GIS component visualizes sensor network data in the context of a multi-layered map, including a floor plan of the condo
2. A client based on the floor plan supports the placement of motion sensors to enable localization in the condo
3. A range of queries can be issued through the GIS and results visualized with graphs and on the map
4. AJAX enables efficient GIS-server communication

- 3 The Smart Condo server offers a set of APIs for
  - Managing the sensor network
  - Querying past and current sensor readings